



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,275	04/05/2005	Yusuke Mitari	00862.103995.	3631
5514 7590 03/11/2009 FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112				
EXAMINER				
SAINT CYR, LEONARD				
ART UNIT		PAPER NUMBER		
2626				
MAIL DATE		DELIVERY MODE		
03/11/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/530,275

**Applicant(s)**

MITARI ET AL.

**Examiner**

LEONARD SAINT CYR

**Art Unit**

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 3 - 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3 - 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04/05/05 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 02/12/09.

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/16/08 has been entered.

### ***Response to Arguments***

2. Applicant's arguments filed 12/16/08 have been fully considered but they are not persuasive.

Applicant argues that neither Mori nor Matsugu nor Badique teach calculating a respective likelihood of a plurality of categories for features of a second layer higher than a first layer on a basis of an analyzed distribution of a feature extraction of the first layer; selecting a category from among the plurality of categories, whose calculated likelihood is not less than a predetermined value, and extracting an only feature which belongs to the determined category from the second layer (Amendment, pages 8 - 11).

The examiner disagrees, since Matsugu disclose "the feature detection layers are connected (interconnected) so that the **feature detection layers can receive the outputs from the cells, belonging to the same channels in the feature**

**consolidation layer at the preceding stage.** In a case where the local area recognition module detects, in a local area, a high-order pattern with an output level **higher than a predetermined threshold value, the local area recognition module outputs information of the category (detection probability or detection likelihood) and position information of an object detected in that local area"** (paragraphs 53, and 68). Interconnecting the features detection layers and outputting information of a category (detection probability or detection likelihood) when a high-order pattern with an output level higher than a predetermined threshold value is detected suggests determining a category from among the plurality of categories, whose calculated likelihood is not less than a predetermined value, and extracting a feature which belongs to the determined category from the second layer.

***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**Claims 1, 3 – 11, 13 - 18** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. As per the most recent interpretation of the Interim Guidelines regarding 35 U.S.C. 101, claims 1, 2, 4, and 8 - 16 define non-statutory processes because they merely manipulate an abstract idea (mathematical algorithm) without a claimed limitation to produce a useful, concrete, tangible result. If the acts of a claimed process manipulate only numbers, abstract

concepts or ideas, or signals representing any of the foregoing, the acts are not being applied to appropriate subject matter (Benson, 409 U.S. at 71-72, 175, USPQ at 676). Furthermore, claims define nonstatutory processes if they simply manipulate abstract ideas (Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759). As for guidance to areas of statutory subject matter, see 35 U.S.C. 101 Interim Guidelines (with emphasis of the Clarification of Interim Guidelines For Examination of Patent Applications for Subject Matter Eligibility); as an example, in Alappat, the claimed output smooth waveform (consisted of lighting pixels on an oscilloscope/display) is a useful, concrete, tangible, final result; in Arrhythmia, the claimed useful, concrete, tangible, final result represented the condition of a patient's heart; in State Street, the claimed useful, concrete, tangible, final result was data output that represented a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent.

Claims **1, 3 – 11, 13 - 18** reviewed in light of the specification, simply recite an abstract idea for pattern identification of an input data.

As can be seen by claims **1, 3 – 11, 13 - 18** these claims recite an abstract idea by setting forth the step of “calculating a respective likelihood of a plurality of categories for features of a second layer higher than a first layer on a basis of an analyzed distribution of a feature extraction of the first layer, selecting a category from among the plurality of categories, whose calculated likelihood is not less than a predetermined value; etc.” These steps are abstract in nature.

It is readily apparent that when claims 1, 3 – 11, 13 - 18 are each taken as a whole, the claims are directed to the preemption of an abstract idea, and thus are non-statutory.

Claims 1, 3 – 11, 15 – 18 are rejected under 35 USC 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps to be performed, a statutory process under 35 USC 101 must be tied to another statutory category (such as a manufacture or a machine) or transform underlying subject matter (such as an article or material) to a different state or thing. The steps in those claims can be performed manually without the use of a particular machine. Those claims could be interpreted as manipulating an input data by calculating different values of a plurality of categories for features of the input data; and based on those values, selecting a category whose value is higher than a threshold value. Thus, claims 1, 3 – 11, 15 – 18 do not define a statutory process.

***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1, 3-7, 9 - 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al.(US PAP 2002/0181765) in view of Matsugu (US PAP 2002/0181775).

Regarding claims 1, 13 and 14 Mori et al. discloses a pattern identification method of identifying a pattern of input data by hierarchically extracting features of the input data, comprising:

a first feature extraction step of extracting a feature of a first layer (see para [0056]);

an analysis step of analyzing a distribution of a feature extraction result in the first feature extraction step (see para [0053]);and

a second feature extraction step of extracting a feature of a second layer (see para [0057]).

However, Mori et al., do not specifically teach calculating a respective likelihood of a plurality of categories for features of a second layer higher than a first layer on a basis of an analyzed distribution of a feature extraction of the first layer, selecting a category from among the plurality of categories, whose calculated likelihood is not less than a predetermined value, and extracting an only feature which belongs to the selected category from the second layer.

Matsugu teaches the feature detection layers are connected (interconnected) so that the feature detection layers can receive the outputs from the cells, belonging to the same channels in the feature consolidation layer at the preceding stage. In a case where the local area recognition module detects, in a local area, a high-order pattern with an output level higher than a predetermined threshold value, the local area recognition module outputs information of the category (detection probability or

detection likelihood) and position information of an object detected in that local area (paragraphs 53, and 68).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to interconnect feature detection layers as taught by Matsugu in Mori et al., because that would help efficiently perform recognition using a small-scale circuit for detecting (recognizing) pattern a predetermined category (paragraph 13).

Claim 14 further teaches a computer readable storage medium ("computer software...storage medium"; Matsugu , paragraphs 4, and 92).

Regarding claim 3, Mori et al. further disclose that in the first or second feature extraction step, a feature obtained by performing a predetermined transformation to a predetermined feature is extracted (see para [0057]).

Regarding claim 4, Mori et al. Mori et al. further disclose a re-extraction step of re-extracting a feature of a lower layer on the basis of a feature extraction result of a higher layer in the second feature extraction step (see para [0056]- [0058]).

Regarding claim 5, Mori et al. further disclose that in the analysis step, a distribution of each of the plurality of feature extraction results is analyzed, and a relative relationship between analytical results is analyzed (see para [0053], [0061]).



Regarding claim 6, Mori et al. further disclose that in the analysis step, a distribution within a specific range of at least one of the feature extraction results is analyzed (see para [0053], [0061]).

Regarding claim 7, Mori et al. further disclose that in the analysis step, whether the feature is extracted or not extracted within a predetermined range in a distribution of at least one of the feature extraction results is analyzed (see para [0053], [0061]).

Regarding claim 9, Mori et al. further disclose that in the analysis step, a size of a range within which the feature is extracted or not extracted in a distribution of at least one of the feature extraction results is analyzed (see para [0053], [0061]).

Regarding claim 10, Mori et al. further disclose that in the analysis step, a likelihood of at least one of the feature extraction results or a total of feature detection levels is analyzed (see para [0061]).

Regarding claim 11, Mori et al. further disclose that the pattern identification is performed on the presence/absence of a face image contained in the input data (see para [0078] - [0079]).

Regarding claim 12, Mori et al. further disclose that the pattern identification is performed on a position of a face image contained in the input data (see para [0079]).

Regarding claim 15, Mori et al. further disclose that a second feature extraction step of extracting a feature of a second layer higher than the first layer by one on the basis of a feature extraction result in the first layer and a feature extraction result in a layer other than the first layer (see para [0056]- [0057]).

Regarding claim 16, Mori et al. further disclose that the layer other than the first layer is a layer lower than the first layer (see para [0056] - [0057]).

Regarding claim 17, Mori et al. further disclose that the layer other than the first layer is the second layer (see para [0056] - [0057]).

Regarding claim 18, Mori et al. further disclose that an integrating step of integrating feature extraction results by a plurality of feature extractors in the same layer (see para [0053]).

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al.(US PAP 2002/0181765) in view of Matsugu (US PAP 2002/0181775), and further in view of Badique (US Patent 5,570,434).

Regarding claim 8, Mori et al. in view of Matsugu do not specifically teach a barycenter of a distribution of at least one of the feature extraction results is analyzed. However this feature is well known in the art as indicated by Badique. Badique discloses a face recognition method that analyzes the distribution of features (see col. 9, line 63 - col. 10, line 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a barycenter of a distribution of the features for the benefit of enabling the recognition of the mouth and eyes (see col. 2, lines 49-51).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD SAINT CYR whose telephone number is (571) 272-4247. The examiner can normally be reached on Mon- Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Art Unit: 2626

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LS

03/04/09

/Richemond Dorvil/  
Supervisory Patent Examiner, Art Unit 2626